

SUSTAINABILITY REPORT 2013-14

wpi.edu/+sustainability
green@wpi.edu



WPI

TABLE OF CONTENTS

A Message from President Leshin.....	3
About This Report and WPI.....	4
Academics.....	6
Research and Scholarship.....	13
Campus Operations.....	16
Campus Events.....	30
Community Initiatives.....	32
Sustainability Awards and Recognition.....	34

Worcester Polytechnic Institute
100 Institute Road
Worcester, MA 01609
wpi.edu/+sustainability
green@wpi.edu

A MESSAGE FROM PRESIDENT LESHIN



I'm pleased to present our fifth annual WPI Sustainability Report, which summarizes the operational performance, academic achievements, and community engagement across campus during the academic year.

Guided by the WPI Task Force on Sustainability, our community continues to make advances in the scope, depth, and impact of our efforts. We recognize that sustainability is measured not only by how we treat our physical environment but also how we engage with people.

In this report, we present our campus's performance on utility consumption, waste generation, greenhouse gas production, and advancement in the areas of new construction, transportation, and dining. We also review our progress in incorporating the themes of environmental stewardship, economic stability, and social justice through our student projects and faculty research. As a result, we have been able to make substantive impacts at the intersection of technology and society. Finally, we evaluate our engagement with the campus and local and global communities.

Construction of the Sports & Recreation Center and Faraday Hall means WPI now has four LEED-certified buildings. A major energy retro-commissioning project was completed in the Rubin Campus Center and the Gateway Life Sciences building, leading to significant energy improvements and savings. And two new project centers were established: the Sustaining WPI On-Campus Project Center and the Energy Sustainability Project Center.

I'm very proud that the engagement of our students and faculty in projects and research continues to enhance the quality of life for people around the world.

In addition to highlighting our achievements, the report also identifies areas where we can continue to improve. This past year saw the acceptance of the WPI Sustainability Plan by our Board of Trustees, and our initial results are recorded here. The paths laid out by the Plan will guide even greater accomplishments in the future.

A handwritten signature in black ink, appearing to read 'L. Leshin', written in a cursive style.

Laurie Leshin
President, WPI

ABOUT THIS REPORT AND WPI

2.3

million square feet
of building space

93

acre campus

348,810

LEED certified space
(in square feet)

This report documents WPI's progress in sustainability through the 2013–14 academic year and serves as our fifth annual report of this kind. With the acceptance of our WPI Sustainability Plan in February 2014 by the WPI Board of Trustees, we are formally integrating sustainability more deeply throughout our institution, from academics and research to campus operations and community engagement.

Since our founding in 1865 as one of the United States' first universities dedicated to science, technology, and engineering, concepts of sustainability have always been integral to our mission. WPI offers more than 50 undergraduate and graduate degree programs. Students and faculty work on interdisciplinary research that seeks solutions to important and socially relevant problems in a broad range of fields, from the life sciences and bioengineering to energy, materials, and our critical infrastructure. Students have the opportunity to make a difference in communities and organizations around the world through the university's innovative Global Perspec-

tive Program. There are more than 40 WPI project centers throughout the Americas, Africa, the Asia-Pacific region, and Europe, where our students apply their study of technology to help solve social and economic problems.

Along with our progress, this report discusses challenges we are facing, such as how to reduce our waste streams and encourage more sustainable commuting practices. Throughout this report we include comments from faculty and other community members that reflect what sustainability truly means at WPI.



5,324
students (FTE*)

604
staff (FTE*)

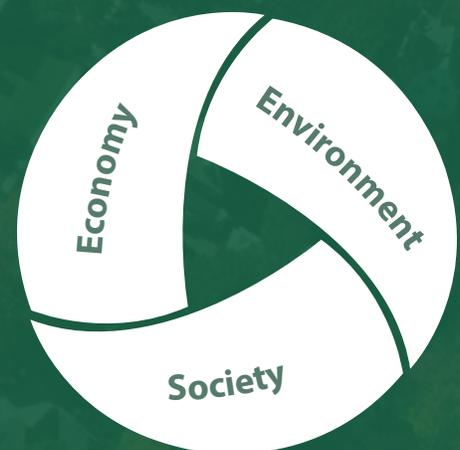
371
faculty (FTE*)

WHAT IS SUS·TAIN·ABIL·I·TY

AASHE** defines sustainability in an inclusive way, encompassing human and ecological health, social justice, secure livelihoods, and a better world for all generations. At WPI we apply this definition across all aspects of the university: teaching and learning, research, facilities operations, and community engagement.

**Full time equivalent*

***Association for the Advancement of Sustainability in Higher Education*



ACADEMICS

At WPI, learning has always been about combining theory and practice. In today's complex world, sustainable solutions must incorporate both of these concepts. Sustainability has been an explicit part of our academic programs since the advent of the "WPI Plan" more than 40 years ago. We continue to add new courses and research opportunities that allow our graduates to integrate these principles into their work beyond WPI. This section highlights some of the work that our students have done during the 2013–14 academic year.

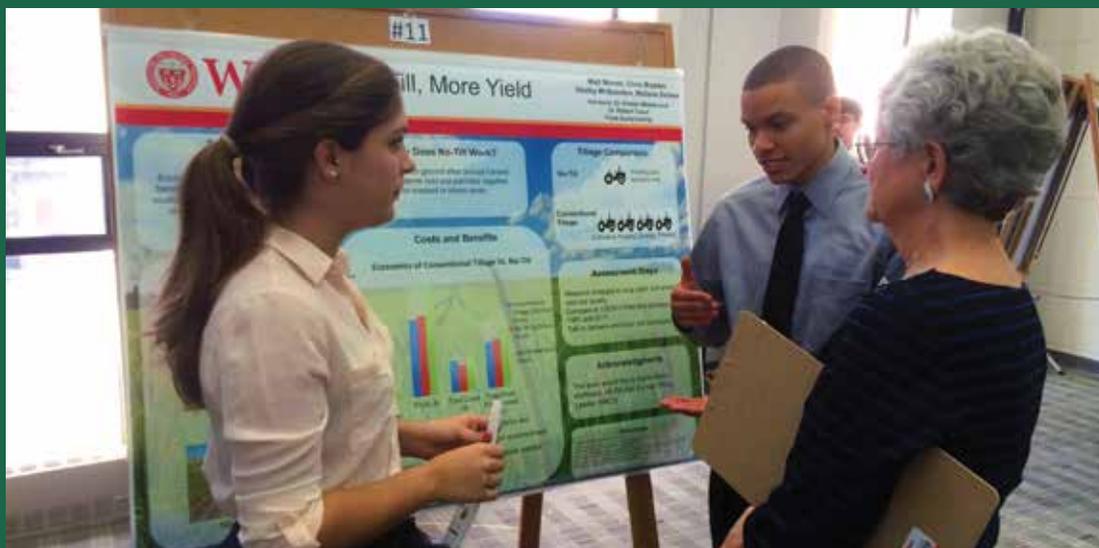
SOLAR DECATHLON CHINA

The Solatrium, a solar-powered home built by Team BEMANY, an international, multi-university team led by WPI, earned 1st place in the hot water and energy balance contest, 4th place in the communication contest, and 8th place overall in the 2013 Solar Decathlon China competition. For more information, visit wpi.edu/news/20134/solarresult.html.



ENVISIONING SUSTAINABLE FUTURES COMPETITION

WPI's 6th annual sustainability project competition was the largest to date, attracting 21 undergraduate and graduate project teams. The 12 Judges came from the Regional Environmental Council, the Greater Worcester Land Trust, Worcester State University, GreenerU, the Institute for Energy and Sustainability, the Worcester City Council, and a number of WPI departments.

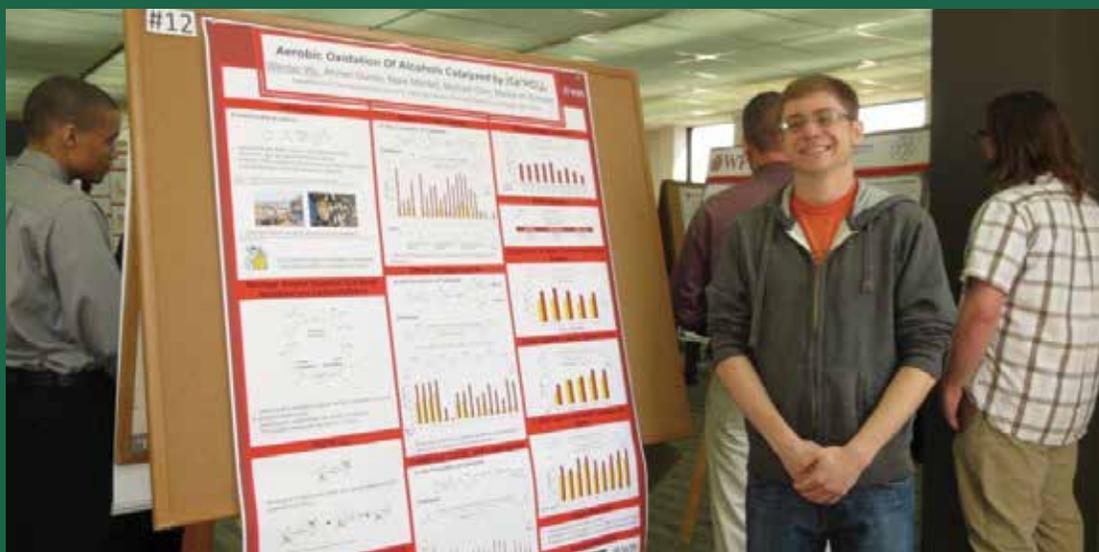


WINNERS

First Year: *No Till, More Yield*, students: Matt Morais, Chris Madden, Shelby McQueston, Maitane Sesma; advisors: Robert Traver, Kristin Wobbe

Undergraduate: *Air Oxidation of Alcohols Catalyzed by $(Cp^*IrCl_2)_2$* , students: Wenbo Wu, Ahmet Gunay, Mark Mantell, Michael Chin; advisor: Marion Emmert

Graduate: *Fabrication of TiO_2 /Graphene in Core Shell Structure as Advanced Anode Materials*, students: Yinjie Cen, Yuqin Yao, Quan Xu, Zhenahi Xia; advisors: Richard Sisson, Jianyu Llang



MAJOR QUALIFYING PROJECT (MQP) - SENIOR YEAR



The culminating experience for all WPI undergraduates is referred to as the **Major Qualifying Project**. Usually conducted in small teams, the students apply the knowledge and experience gained in their education to a real-world problem or research topic. Often these problems involve substantial aspects of sustainability. The following project was conducted in Environmental Engineering and is representative of the large number of projects across many majors that advance the principles of sustainability.



"The Mohegan Council, Boy Scouts of America, is proud of our partnership with WPI. This project provided us the insight and guidance we are using as we complete the planning and permitting process to move this project forward to completion."

- Thomas Chamberland,
Vice President of Camping,
Mohegan Council

Environmental Site Assessment for the Sustainable Development of Treasure Valley Scout Reservation's West Camp, student: Stasia DeVito; advisor: Suzanne LePage

DeVito conducted an Environmental Site Assessment of the Cub Scout Day Camp identifying rainfall collection and re-use opportunities and stormwater management initiatives that the Council could integrate into its West Camp. This work has allowed the Mohegan Council of Boy Scouts of America to select appropriate sites and methods for future development.

INTERACTIVE QUALIFYING PROJECT (IQP) - JUNIOR YEAR



"The ideas of the society become the ways in which you understand yourself and the way in which you understand yourself leads you to act in certain ways that can reinforce and change the place you live in."

- Roger Gottleib,
Professor, Humanities & Arts

While equivalent in significance to the Major Qualifying Project, this junior-year experience is generally not directly related to the student's major area of study, but is intended to relate an aspect of technology to society. Hence, a large percentage of these projects directly address one or more of the three fundamental aspects of sustainability. The project described here is representative of the social justice component.

"Earn-a-Bike looks forward to continued involvement from WPI students. We view WPI as an accessible community of talented and resourceful young people who are excited to help others."

- Matt Warndorf,
Shop Manager,
Earn-a-Bike



Creating an Adaptive Bicycle, students: Bror Axelsson, Jaclyn Decristoforo, Kyla Rodger, Aida Waller; advisors: Corey Dehner, Stephen McCauley

The goal of this project was to create an adaptive bicycle design for use by teenagers with Down Syndrome, autism spectrum disorder, and cerebral palsy. The team developed a prototype by making a standard adult bicycle with parts available at Earn-a-Bike's shop at minimal cost.

2013 PRESIDENT'S IQP AWARDS



Sustainability topics frequently appear among the winners of this award, and academic year 2013–14 was no different. The award was given to a group of students who created and compiled educational resources on preventing and minimizing lead exposure for elementary school students and teachers in Thailand.

Winner: *Promoting a Lead-Free Community, An Educational Program for Schools in Thailand*, students: Brianna Hayes, Taylor McNally, Trevor Rancourt, Tracy Sinkewicz; advisors: Seth Tuler, Stanley Selkow

For more information on the finalists and honorable mention: wpi.edu/about/awards/iqp.html

GREAT PROBLEMS SEMINAR (GPS) - FIRST YEAR



These innovative first year experiences immediately engage our students with the great opportunities and problems facing the global population, all of which involve some aspect of sustainability. Topics addressed in academic year 2013–14:

- Heal the World
- Food Sustainability
- The World's Water
- Biosphere, Atmosphere, and Human Fears
- Power the World
- Recycle Our World

NEW PROJECT CENTERS

Energy Sustainability Project Center

WPI's Energy Sustainability Project Center (ESPC), directed by Professor John Orr, provides an opportunity to match students with faculty and project topics, and to coordinate corporate sponsorship in the field of sustainable energy. Over 60 previously completed projects on the topic of energy have built a strong foundation for this new project center.

"This center is a great example of what WPI does so well: bringing faculty and students together around interdisciplinary problems to achieve substantial results."

- John Orr,
Director, Sustainable Energy
Project Center



Sustaining WPI On-Campus Project Center

Inspired by student interest in sustainability, proposed by IGSD Dean Richard Vaz, and directed by Professor Suzanne LePage, the Sustaining WPI On-Campus Project Center was launched in 2013. This new project center provides students and advisors with the opportunity to invest in their own campus while working on projects related to the three tenants of sustainability: environmental stewardship, economic stability, and social justice.

Innovation is the successful exploitation of new ideas in our society that may either be entirely new or the application of existing ideas to new uses. In view of the increasing importance of innovation in our lives, an innovation competition for WPI undergraduate students was established by Henry, '54 and Alberta Strage, with the objective of applying student knowledge to the development of viable new projects or ventures.

The award is not limited to the topic of sustainability but this year's recipient is squarely in the domain of sustainability.

2014 STRAGE INNOVATION AWARD



**2014 Winner: Modular Solar
Panel Assembly**
student: Arman Uygur
advisor: Cagdas Onal
provisional patent filed



This year's University Lecture presented the often overlooked question of setting priorities among all of the global problems that should be addressed. We welcomed Bjorn Lomborg, founding director of the Copenhagen Consensus Center. Lomborg was recognized by *TIME* magazine as one of the 100 most influential people in the world. He prefaced his lecture, "Prioritizing Our Greatest Problems Versus Prioritizing Our Efforts to Find Solutions," with the question, "If you had \$75 billion to do good in the world, where would you spend that over the next four years?" Participants selected, in order of importance, improving the nutrition of preschoolers as their top priority; increasing green energy research and development; and increasing geoengineering research and development.



"There are lots of issues that we can choose to deal with. The real issue is where should we start?"

- Bjorn Lomborg,
2014 University Lecture,
February 24, 2014

RESEARCH AND SCHOLARSHIP

WPI is a national research university with a long tradition of collaborative work across disciplines. Much of the research pertains to sustainability and focuses on providing solutions to meaningful problems that can change the world in positive ways. At present no formal process exists to capture and report the breadth of research and scholarship regarding sustainability that is occurring at WPI; one of the goals of the Plan for Sustainability is the development and implementation of such a process. Some examples of sustainability-themed research are briefly presented here.

"There's a positive energy at WPI, because people want to do good. That's why I came here."

- Joseph Sarkis,
Dean ad interim,
Professor, Robert A. Foisie School of Business



UNDERSEA KITES

The National Science Foundation recently awarded mechanical engineering professor David Olinger \$303,201 for his research on harvesting energy from ocean currents using undersea kites. Although kites for harvesting wind energy have become popular at research universities in recent years, Olinger's design for undersea kites is a novel technology. His student research team, which began work in January 2014 hopes to build a working scale model of an undersea kite to be tested at Alden Research Laboratory by the end of 2016. The kite, constructed of metal or fiberglass and tethered to a floating platform or the ocean bottom, "flies" underwater in a figure-eight, generating power from ocean currents using an on-board electric generator. In the US, the potential use for undersea kites spans the lengths of our east and west coasts, potentially benefitting 39 percent of the US population.

"It is important for WPI to strengthen and develop new interdisciplinary research programs, essential for finding the new technologies and strategies that can ensure meeting the human needs of the present, without compromising the future."

- Bogdan Vernescu,
Vice Provost for Research, ad interim
Professor, Mathematical Sciences



RESOURCE RECOVERY



The Center for Resource Recovery and Recycling (CR³) is an NSF Industry/University Cooperative Research Center (I/UCRC). It serves as the premier cooperative research center focused on sustainable stewardship of the earth's resources. Led by WPI, the partnership includes Colorado School of Mines and KU Leuven in Belgium. Eighteen corporations including Alcoa and General Motors are currently members. The focus is on helping industry address the pivotal societal need of reducing resource consumption. CR³ advances technologies that recover, recycle and reuse materials throughout the manufacturing process. These advancements will help reduce energy costs and increase profitability, while protecting our natural resources.

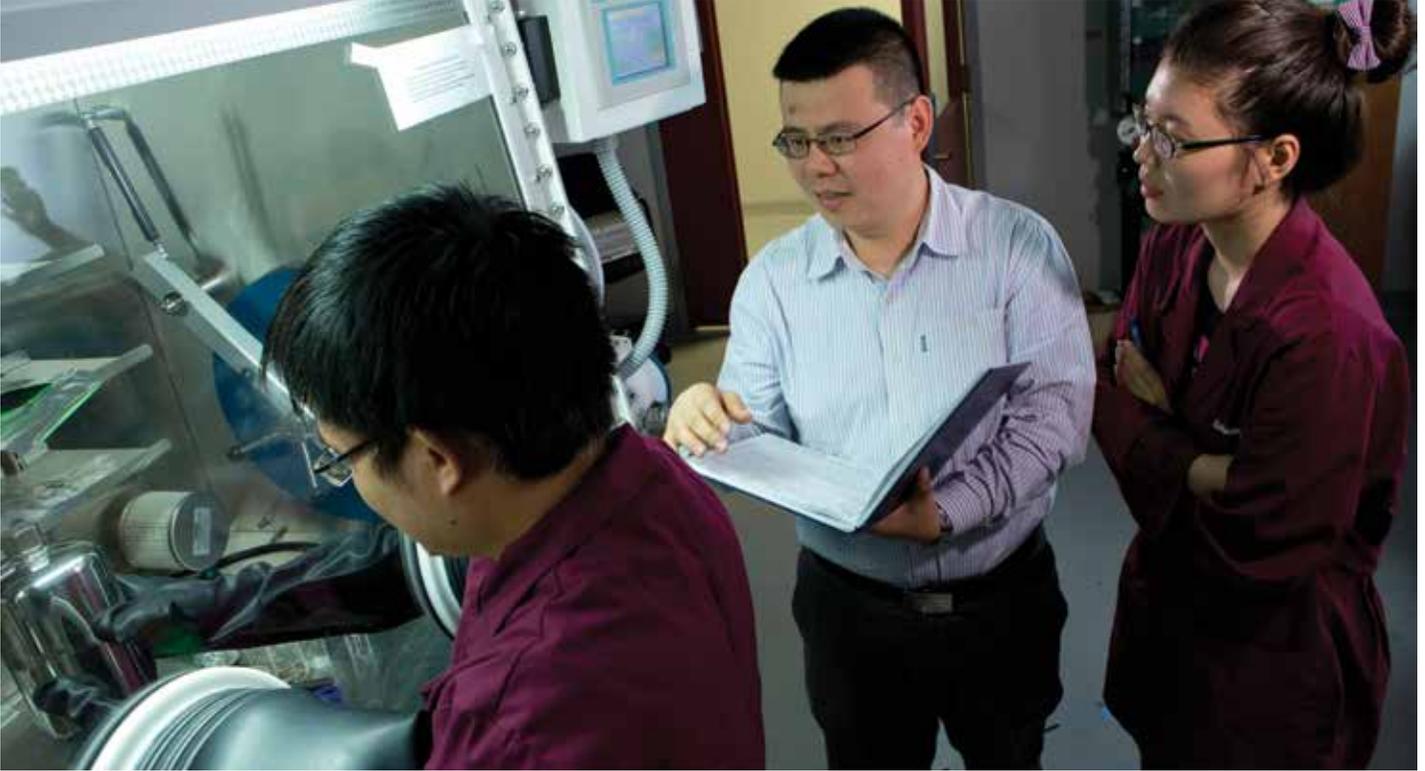


"Sustainable Development for the 21st Century is perhaps one of our most difficult grand challenges we face, as it requires huge efforts on all three fronts: education, policy and technology developments (innovation).

Implementing any of these initiatives is difficult enough; to implement on all three fronts is a huge task that requires a collaborative that has a global perspective.

The solutions we need are global ones, and require global perspectives.

- Diran Apelian,
Alcoa-Howmet Professor of
Mechanical Engineering;
Director of Metal Processing
Institute



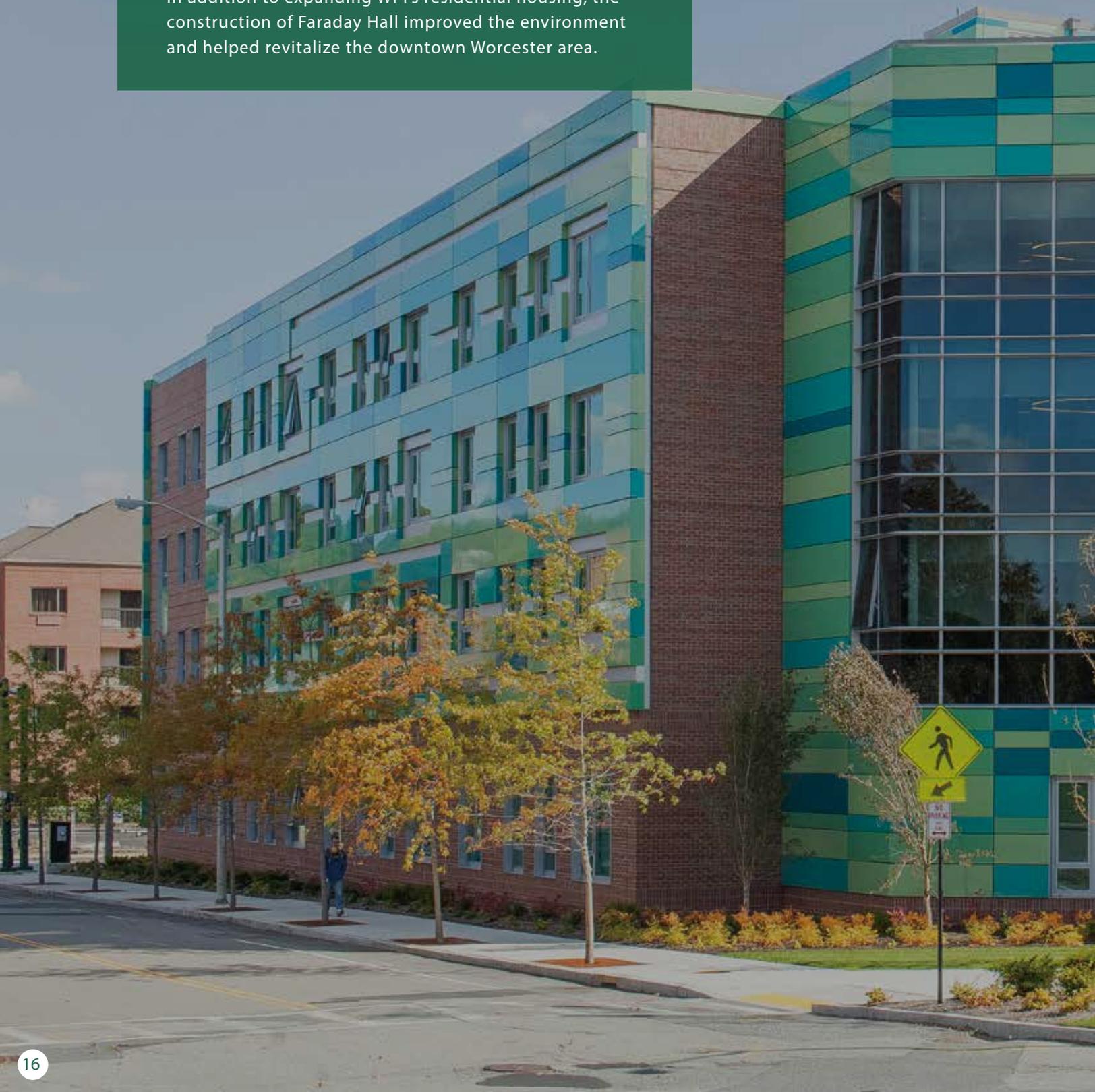
Professor Yan Wang investigates new electrodes and materials for energy storage, including lithium ion batteries, supercapacitors, flow batteries, battery safety and recycling, and fundamental electrochemistry. This research can lead to energy storage with high energy density, high power density, long life, low cost, and increased safety.

LIQUID FUELS

Professor Michael Timko's research interests include studying the environmental and engineering aspects of clean energy technologies, with a specific emphasis on liquid transportation fuels. Liquid transportation fuels are derived nearly exclusively from petroleum resources. These resources are finite, distributed unevenly around the world, and their combustion contributes to many different environmental problems. His work involves studying the fundamental chemical engineering science including transport, phase behavior, and reactor design to develop new technologies for converting underutilized energy resources into fuels and chemicals.

CAMPUS OPERATIONS

In the fall of 2013, WPI opened its fourth LEED Certified building, Faraday Hall. This 89,000-square-foot LEED Silver residence hall, which houses 258 students, sits on a redeveloped brownfield site between the lower campus, known as Gateway Park, and the main campus. In addition to expanding WPI's residential housing, the construction of Faraday Hall improved the environment and helped revitalize the downtown Worcester area.





- At least 99% of demolition and construction waste was diverted from landfill
- Rain sensors reduces potable water use for irrigation by at least 50%
- Steel used to construct Faraday Hall is at least 63% postconsumer recycled and at least 20% preconsumer recycled content
- Occupancy sensors and daylight dimmer sensors are used to reduce lighting energy consumption
- Aluminum windows with thermal barrier system reduce energy consumption
- Water faucets use 1.5 gal/min rather than typical 2 gal/min and toilets use 1.28 gal/flush, 20% less than industry standard, and shower heads flow at 1.5 gal/min rather than the baseline 2.5 gal/min
- Heating and cooling systems provide a 56% heating energy savings and a 4% cooling energy savings compared to ASHRAE baseline

ENERGY MANAGEMENT PROJECTS



Our SynergE Worcester initiative at Gateway I and the Rubin Campus Center are on track to reduce total campus electricity usage by 11% and total campus greenhouse gas (GHG) emissions by 7%. The Gateway I retrofits include the following:



- Fume hood and sash sensing upgrades: Each fume hood was retrofitted with both vertical and horizontal sash pane sensing to reduce air changes while maintaining a safe environment
- Lab ventilation optimization: Adjusted fume hood minimum air flow, general exhaust and variable-air-velocity supply based on ANSI/AIHI Z9.5 and NIH guidelines
- Building automation system optimization
- Two 75 kW combined heat and power co-generation units to satisfy portions of building electrical and hot water demand
- LED lighting retrofits



The Rubin Campus Center retrofits include the following:

- Adjusting building temperature and ventilation to meet building occupancy demands
- Upgraded rooftop controllers to provide better, more energy-efficient operation of the units
- Variable air volume upgrades to increase energy efficiency and comfort by better controlling temperature and ventilation
- New kitchen steam valves and actuators to help regulate the temperature and ventilation for the kitchen and prevent overheating
- Daylight sensing to adjust lighting requirements based on ambient light
- LED lighting
- Occupancy sensors in conference rooms to adjust lighting and temperature based on room use

Energy efficiency improvements installed in the Rubin Campus Center in 2013 and 2014 will save an estimated 670,000 kWh annually, representing a 34% reduction in electricity consumption in the building. These improvements also reduce natural gas and steam energy use by 34,000 therms each year. This is the equivalent of taking approximately 135 cars off the road.

WPI has identified Goddard Hall, Higgins Labs, and Gateway Garage as candidates for similar retrofits to further increase campus energy efficiency.

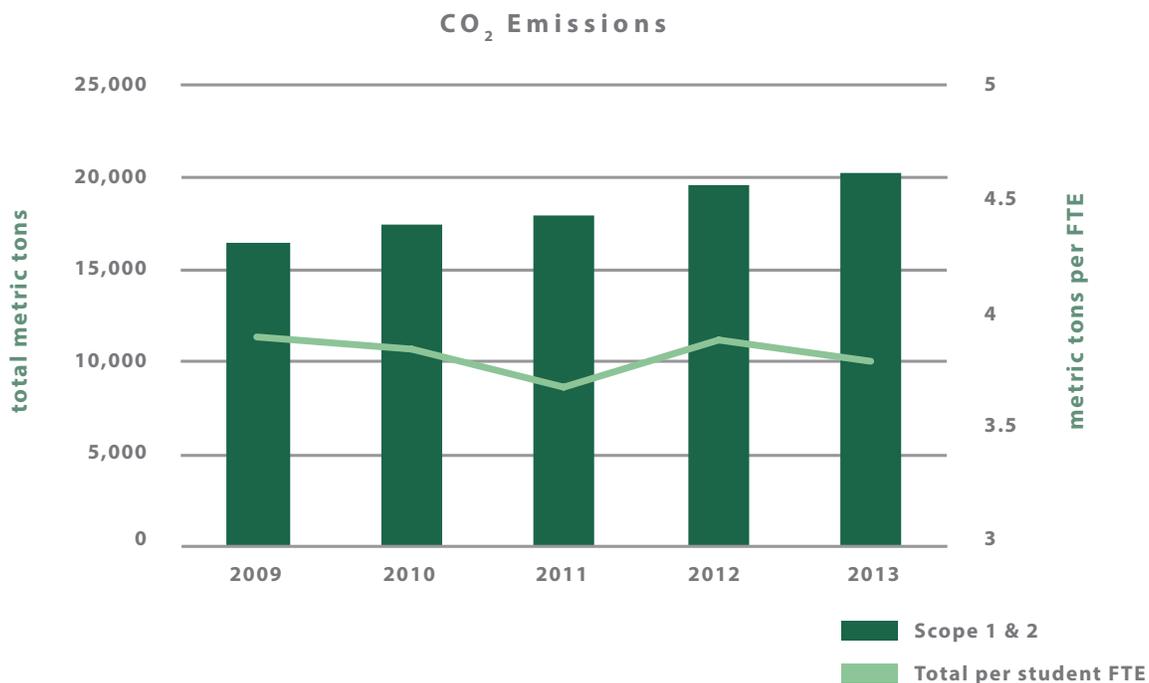
ENERGY CONSUMPTION

WPI saw a 5% increase in the amount of energy (electricity and natural gas) consumed in AY2013–14. The increase in natural gas consumption to compensate for the exceptionally long and cold winter experienced in the northeast and the opening of Faraday Hall, were the primary reasons for this increase. However, when normalized by full-time community population (6,299 FTE students, faculty, staff) our energy consumption remained the same as 2013, and we only used 1% more energy per square foot compared to 2013. By normalizing our natural gas consumption by the heating degree days experienced during the academic year, a 5% year-on-year reduction on a per-degree day basis is evident. This performance can be attributed to our energy retrofit projects.

Our electricity consumption increased by 3% over 2013, but when looking at it on a per square foot and full-time WPI community population basis, we reduced consumption by 3% and 2%, respectively.

GREENHOUSE GASES EMISSIONS

WPI increased total Scope 1 and Scope 2 greenhouse gas (GHG) emissions by 4% in 2014. This increase was primarily driven by an increased demand for natural gas to heat Faraday Hall. The exceptionally long cold winter Worcester experienced resulted in an increased demand for heat; however, when emissions were normalized by square footage, a 0.3% decrease was realized.



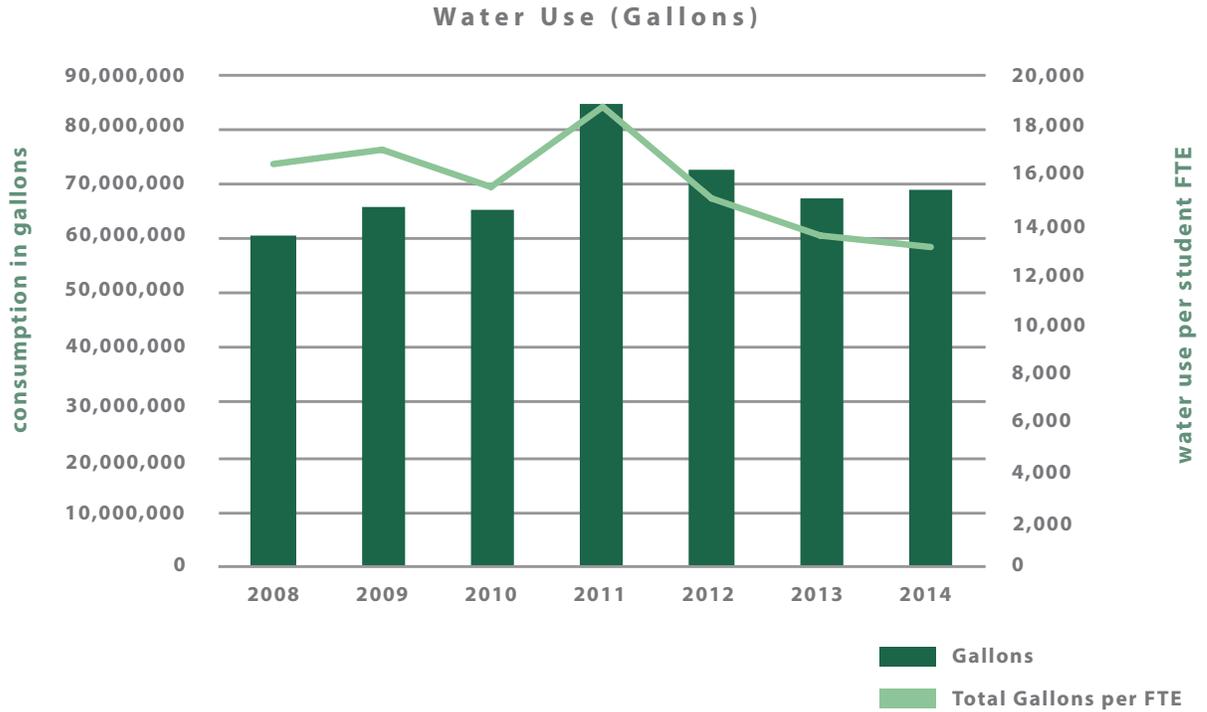
**These emissions are calculated for Calendar Year 2013 as they are reported in response to the Massachusetts Global Warming Solutions Act*

Classifying GHG emissions

Scope 1: direct GHG emissions from sources that are owned or controlled by WPI. They include emissions from fossil fuels burned on site, WPI-owned and leased vehicles, and refrigeration.

Scope 2: indirect emissions from the electricity purchased from the grid.

The overall water consumption increased by 2% during AY2014, likely as a result of maintenance to landscaping at WPI’s new parking garage and playing fields. When consumption is compared to both total building square footage and the total number of WPI community members, consumption decreased by 3% and 4%, respectively.



For more information on WPI’s water consumption trends, see this IQP project at: wpi.edu/Pubs/E-project/Available/E-project-032114-122853/

Water Sustainability at Worcester Polytechnic Institute

Students: Stephen Couitt, Christopher Preucil, and Alexander Wong

Advisors: Robert Hersh and Suzanne LePage



Reduce. Reuse. Recycle.

29.1%

WPI's 2013-14
Recycle Rate

42.3%

WPI's 2013-14
Maximum Potential
Recycle Rate with
current mix of
recyclables

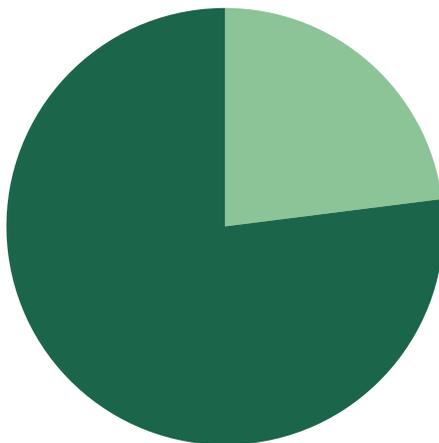
44.5%

WPI's 2013-14
Recycle Rate Goal
(10% above
national average)

CLOSE THE GAP ON RECYCLING

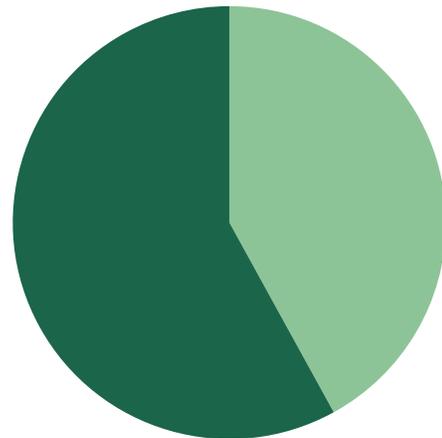
During the 3rd Annual Waste Audit, WPI's Student Green Team sorted 93 bags of waste from three residence halls and one academic building in order to raise awareness of waste generated on campus and what materials can be recycled. This project has the added benefit of providing metrics on WPI's recycling rate. This year our audit revealed that 29% of the total waste was recycled, but there was a potential of 42%, if all materials had been disposed of properly. In other words, 30% of recyclables were disposed in the waste stream.

Actual Recycling



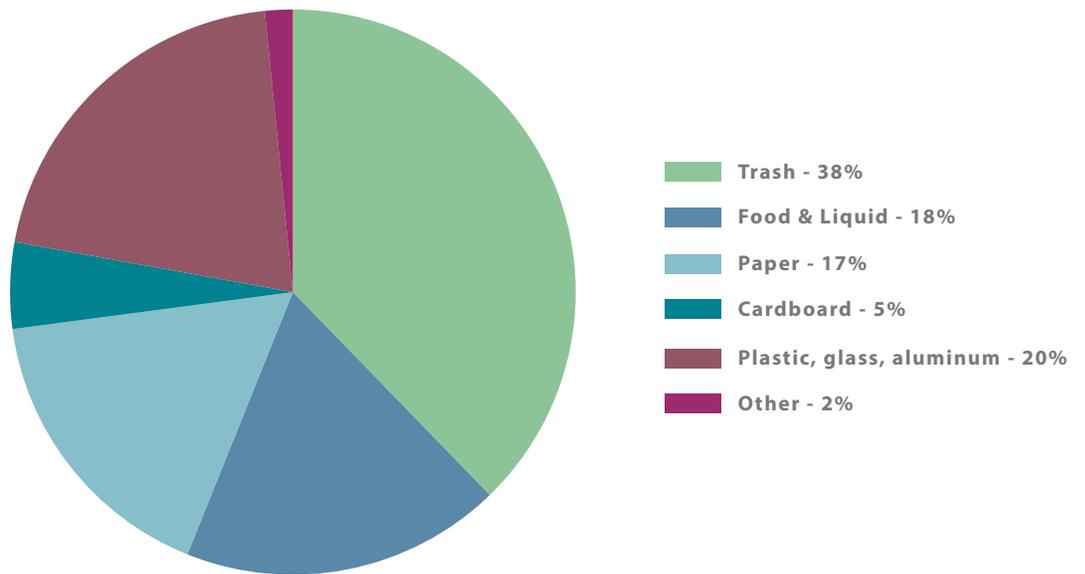
Recycled - 23%
Waste - 77%

Potential Recycling



Recycled - 42%
Waste - 58%

Waste Audit Results



In February 2014, WPI set a goal to achieve a recycling rate 10% above the national average (34.5% according to the EPA). WPI's recycling goal, then, is 44.5%. The transition to single-stream recycling is expected to result in achieving nearly 100% of our maximum recycle rate, but more needs to be done. Careful decisions need to be made regarding daily materials consumption.

WATER BOTTLE FILLING STATIONS

During this past academic year, the eight water bottle filling stations in the Sports and Recreation Center allowed our community to avoid the use of 800,000 disposable water bottles. WPI continues to add new water bottle fillings stations to better serve our community. As of June 30, 2014, there were 26 water bottle filling stations around campus.



GOAT'S HEAD AND CAMPUS CENTER FOOD WASTE RECOVERY



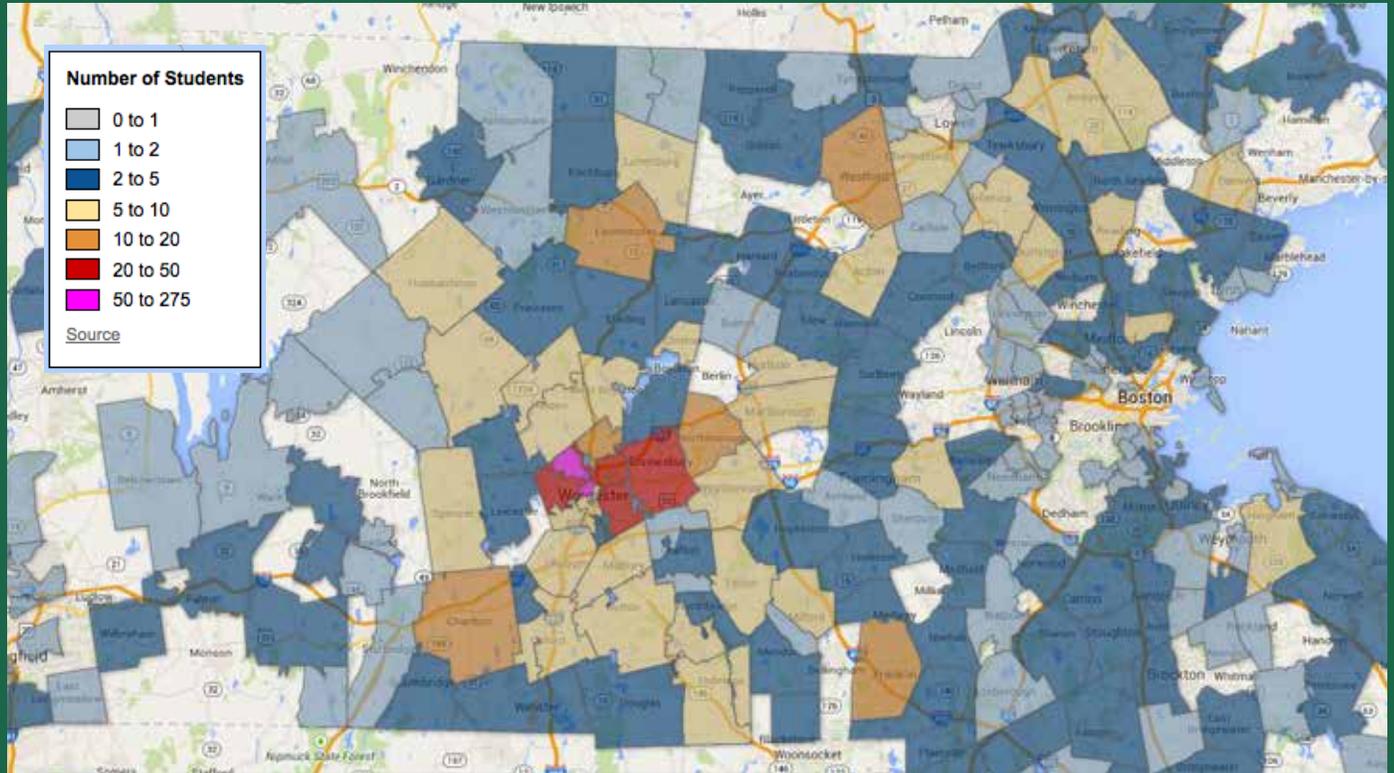
In the fall of 2014, Chartwells expanded WPI's food waste recycling program to include food trimming from the Goat's Head Restaurant and the Rubin Campus Center Food Court. As a result, each day an additional 150 pounds of food waste was diverted from the trash and delivered to a local pig farm, bringing the daily total food waste to approximately 550 pounds.

TRANSPORTATION



This year a group of students conducted a comprehensive study on commuting habits of the WPI community for their IQP project, "Promoting Alternative Transportation." The work included detailed analysis by home ZIP code of the locations from which students, faculty, and staff traveled. This study describes the WPI community's commuting habits:

- 58% (mostly students) live within 10-minute walking distance to campus
- 68% of community members live within Worcester, but greater than a 10-minute walking distance commute daily via personal vehicle
- 1,470 are full-time personal vehicle commuters



This IQP concluded that WPI students, faculty, and staff would use more sustainable transportation if it were made more readily available.

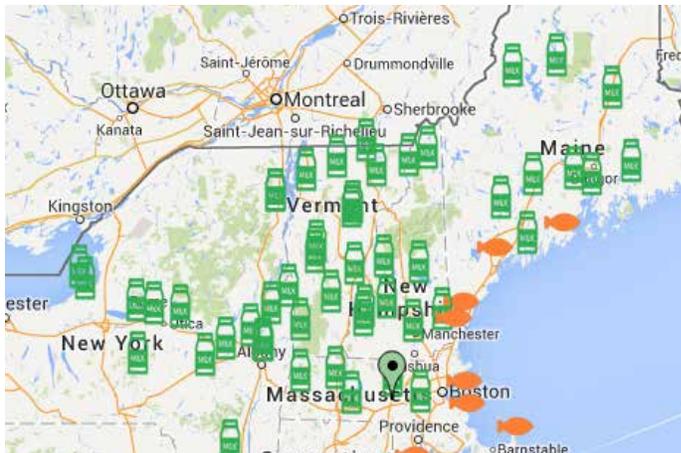
- 64% of all respondents indicated that free or inexpensive bicycle rentals would definitely or possibly change the way they travel off campus. Currently, these off-campus trips are done predominantly by personal vehicles
- 10% of students living off campus would carpool if this option were made easier



DINING SERVICES



WPI's dining service provider, Chartwells, is committed to fostering and promoting sustainable and humane business practices for our community. Only cage-free shell eggs, grass-fed beef, hormone- and antibiotic-free meats, and sustainable seafood are purchased. Chartwells employees are trained to reduce food waste through the Trim Trax program, and biodegradable packaging is used wherever possible. Food waste from dining areas is transported away from campus for use as animal feed. For more information on Chartwells sustainable practices, visit dineoncampus.com/wpi/show.cfm?cmd=sustainability and chartwellshighereducation.com/Chartwells_360_CHE.cfm.



Chartwells sources dairy and seafood locally, as shown in the map.

In January 2014, Chartwells introduced a reusable dishware option for eat-in diners at the food court in the Rubin Campus Center. Customers now have the option to replace disposable to-go containers and plastic ware with reusable baskets, plates, and silverware.



WPI is a community serving several larger communities: The WPI campus, the greater Worcester area, the nation, and the world. Much of this engagement occurs through WPI's 40+ project centers located on campus, around the United States, and across the globe.

Plant Parenthood Program

At the heart of WPI's main campus, atop Salisbury Labs sits the Biology & Biotechnology (BBT) greenhouse. In early 2014, BBT lab manager Abbie White initiated a program called Plant Parenthood, to involve more students in greenhouse activities. Participants in Plant Parenthood learned how to propagate plants by taking cuttings. Each student picked a plant, potted a few cuttings, and selected one plant to take home and one to leave for a future student.



Student Green Team

- Green Team conducted their 3rd Annual Waste Audit, during which they determined the recycling rate for the four buildings audited averaged 29% out of a maximum possible 42%. For more information, visit wpi.edu/Images/CMS/Sustainability/3rd_Annual_Waste_Audit_Report.pdf
- During the 2014 E-Waste Drive, Green Team and the Department of Facilities collected and recycled 7,312 pounds of electronics
- Green Team organized the annual Lighting Fair, where students and staff may purchase energy-efficient lighting at discounted prices
- More Green, Less Guzzle: 2013, the fuel efficient car show

ECO-REPS



The WPI EcoRep program comprises both students and staff dedicated to educating classmates and colleagues on how to be more sustainable on campus. This past year, their campaigns included a dorm energy challenge, a green room certification program, and a project to stop the use of portable space heaters.

896

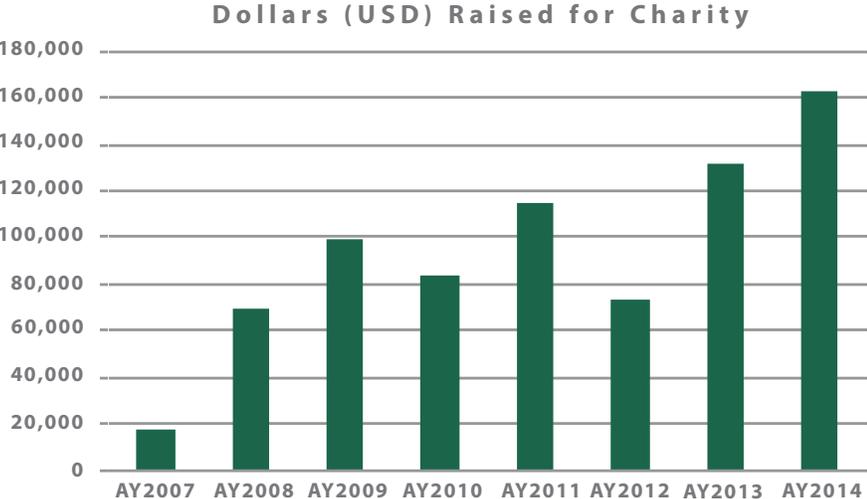
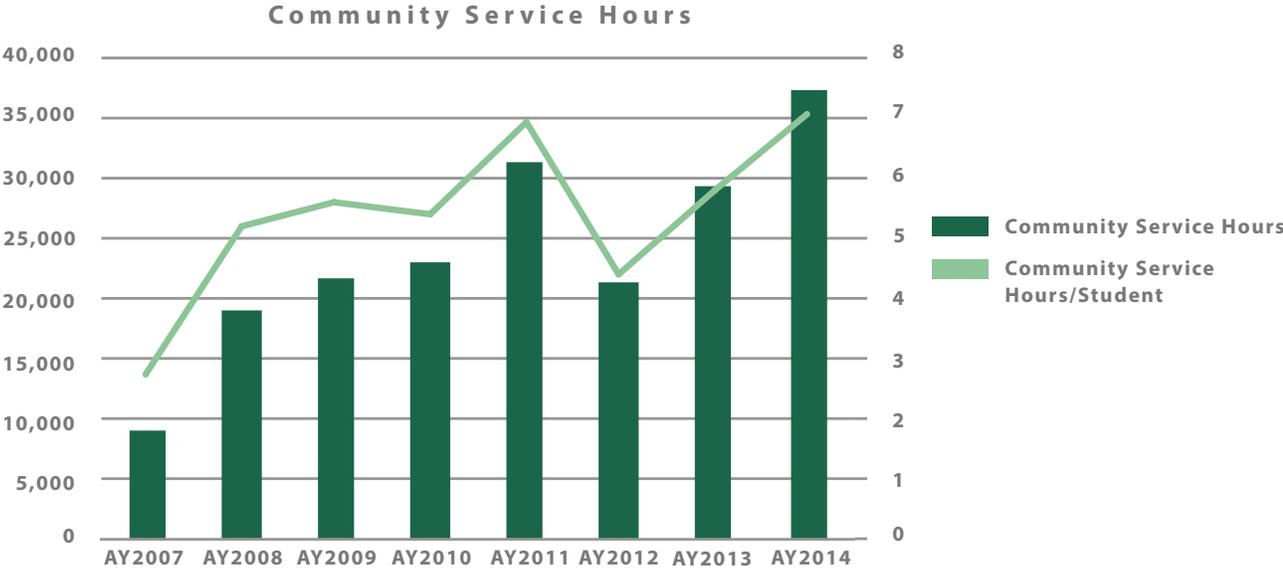
Total number of hours student EcoReps are engaged in peer-to-peer sustainability outreach and education activities annually



WPI student EcoReps partnered with GreenerU and Residential Services to develop the Dorm Energy Challenge to raise awareness of energy consumption in WPI's dormitories and challenged the residents to reduce their consumption. This project began with a plug load audit and provided monthly energy consumption updates to residents.



The WPI community believes strongly in giving back to the local community. Our students make a difference through many opportunities in the Worcester area, including tutoring students with homework in the Boys and Girls Club, serving as Big Brothers or Big Sisters, or partnering with local organizations to clean up neighborhood parks.



CAMPUS EVENTS

During the academic year, sustainability-themed presentations and seminars are held. Several examples, which are open to the entire community, are listed below:

- October 2013: "Saving the Earth, Saving Humanity: A Lecture on Agriculture, Environment Sustainability, and Poverty Alleviation," Osagyefuo Amoatia Ofori Panin, King of the Ghanaian Nation-State of Akyem Abuakwa
- December 2013: "Wind Energy: Will the Growth Continue?" Paul Gaynor, CEO of First Wind
- February 2014: "Prioritizing Our Greatest Problems versus Prioritizing Our Efforts to Find Solutions," University Lecture, Bjorn Lomborg
- April 2014: Act! Speak! Build! This was the theme of a weeklong series of events hosted by WPI's chapter of Habitat for Humanity, an international organization dedicated to advocating and providing affordable housing to all



April 2014: EarthFest Activities

- Senior Sustainability Seminar Poster Presentation & Discussion: Rethinking Economic Values – What is Our Role?
- Phil Giudice, CEO of Ambri, “Perspectives on Creating a Better Future”
- Alicia Barton, CEO of Massachusetts Clean Energy Center, “Growing a Clean Energy Economy: Careers in Cleantech”
- Deep Energy Workshop provided by the Northeast Sustainable Energy Association
- 3R Video Competition: Reduce! Reuse! Recycle! (To view videos by 2014 3R Video Contest Winners, visit wpi.edu/offices/cei/earth-week-video-contest.html)
- 6th Annual Sustainability Project Competition
- 3rd Annual Electronics Waste Drive
- Robert Thompson, Professor, Chemical Engineering, “Myths of Renewable Energy”



WORCESTER AND NEARBY COMMUNITY

Students for a Just and Stable Future



Students for a Just and Stable Future, in collaboration with two local organizations, Better Future Project and 350 Massachusetts, secured a meeting with Gov. Deval Patrick on May 2, 2014, to discuss several potential statewide sustainability initiatives including the implementation of a ban on coal, the creation of local “green” jobs, and the initiation of a task force to determine fair carbon prices. Nine days later, Gov. Patrick confirmed the need for a new Clean Energy Standard and detailed how our state could end its reliance on coal within four years.

National Grid and United Technologies Engineering Ambassadors



This year 33 WPI students working as Engineering Ambassadors (EA) reached out to 2,300 local students to share the excitement of STEM fields. At 53 events in the Worcester community and one event at MIT, EAs presented on a variety of topics including high-altitude wind turbines, smart devices, bridges, and the field of fire protection engineering. National Grid and United Technologies shared sponsorship of these Engineering Ambassadors. Last summer National Grid also selected five WPI EAs (Caroline Atteya, Stella Banou, Sopheaktra Chhim, Rida Fayyaz, and Keaton Smith) to intern at the Worcester Sustainability Hub, a center that provides education about energy efficiency and emerging technologies.

Engineers Without Borders

"Problem solving isn't really problem solving if you're hurting the environment or encouraging practices that will only work in the short term."

- Rita Newman '16
EWB-USA WPI 2013-14
Fundraising Chair

During two trips in the 2013-14 year, EWB-USA WPI installed rainwater harvesting systems in 10 homes in Guachtuq, a rural Guatemalan community, continuing a project started by WPI's Engineers Without Borders in 2009.

Habitat for Humanity

- During "Act! Speak! Build! Week," Habitat for Humanity advocated via a petition-signing for affordable housing for all. Watch for results in next year's report.
- In January 2014, 16 WPI students traveled to central Arizona to assist the local Habitat for Humanity chapter dry-wall the interior of an entire house and paint the interior of another.



Global Humanitarian Alliance

Four members of WPI's Global Humanitarian Alliance traveled to Asunción, Paraguay, in 2014 to implement educational workshops on preventative measures for dengue fever and to establish school-wide cleanup programs at three local schools.

"We work on creating sustainable solutions to problems involving water, sanitation, and hygiene in third world countries."

- GHA Website

SUSTAINABILITY AWARDS AND RECOGNITION



- WPI is listed among the "Cool Schools" identified by the Sierra Club in 2014
 - Green Game Changer Awards were given to both Professor Rob Krueger, director of the Environmental & Sustainability Studies Program, and the WPI Student Green Team at the SynergE Worcester Showcase
 - The Sports & Recreation Center earned LEED Gold Certification in October 2013
 - EWB-USA WPI received an honorable mention at the Environmental Protection Agency's 10th Annual P3 Awards Competition and National Sustainable Design Expo in April 2014
 - The Solatrium, a solar home built by Team BEMANY, an international, multi-university team led by WPI, was recognized in the 2013 Solar Decathlon China Competition by earning 1st place in the hot water and energy balance contest, 4th place in the communication contest, and 8th place overall.
- For more information:
wpi.edu/news/20134/solarresult.html.



ACKNOWLEDGEMENTS

The diligent work of Caitlin Swalec '16, the primary author of this report, is gratefully acknowledged. Liz Tomaszewski and John Orr served as editors, and the Marketing & Communications team of Jessica Grimes, Britt Hafford, and Dianne Vanacore managed the design and production.

The leadership for sustainability initiatives on our campus is guided by the WPI Task Force on Sustainability:

John A. Orr, co-chair, Professor of Electrical and Computer Engineering

Jeffrey S. Solomon, co-chair, Executive VP/CFO, Finance and Operations

Alfredo DiMauro, Assistant VP for Facilities

Philip Clay, Dean of Students

Amy Morton, Chief Marketing Officer

Liz Tomaszewski, Facilities Systems Manager/Sustainability Coordinator

Joe Kraskouskas, Dining Services Manager

Linda Looft, Assistant VP of Government & Communication Relations

Karen Oates, Dean of Arts & Science, Professor

Rob Krueger, Director, Environmental and Sustainability Studies Program

Paul Mathisen, Associate Professor of Civil & Environmental Engineering

Pam Weathers, Professor of Biology & Biotechnology

Alex Zitoli, Students for a Just and Stable Future

Mary Prescott, Student Coordinator and President of Student Green Team

Binam Kayastha, Student Coordinator and Member of Student Green Team





WPI

Worcester Polytechnic Institute
100 Institute Road
Worcester, MA 01609
wpi.edu/+sustainability
green@wpi.edu